

DIRECT TESTIMONY
OF
RUSSELL W. MURRAY

SAFETY AND RELIABILITY DIVISION
TELECOM ENGINEERING
ILLINOIS COMMERCE COMMISSION

DOCKET NO. 13-0669

DATED February 18, 2014

1 **Q. Please state your name and business address.**

2

3 A. My name is Russell W. Murray and my business address is 527 East Capitol
4 Avenue, Springfield, Illinois 62794-9280.

5

6 **Q. By whom are you employed and in what capacity?**

7

8 A. I am employed by the Illinois Commerce Commission as an Engineering Analyst
9 in the Telecom Engineering Department of the Safety and Reliability Division.

10

11 **Q. Please describe your professional background.**

12

13 A. I was employed by the Illinois Commerce Commission in 2000 as an Engineering
14 Analyst. Prior to that, I retired from GTE/Verizon after 30 years of service. I
15 began my career with GTE of Illinois in 1970 as a Central Office Equipment
16 Installer in Belvidere, Illinois. As an Equipment Installer I installed Electrical
17 Mechanical switching equipment, Special Service Equipment and Transmission
18 Equipment in GTE Central Offices in Northern Illinois. In 1976 I became a
19 Switching Technician in New Milford, Illinois. In that capacity I conducted routine
20 maintenance and repair of Electrical Mechanical and the newer #2EAX electronic
21 switches, as well as maintenance and repair of various PABX switching
22 equipment. I also worked on customer related trouble. In 1984 I transferred from
23 Belvidere, Illinois to Bloomington, Illinois to work in the Switching Services

24 Operations Center (SSOC). There I provided technical support to the local
25 Switching Technicians who worked on the #2EAX and GTD5 electronic switches.
26 I also assisted the local technicians in performing the software upgrades called
27 System Version Releases (SVRs). The SSOC not only provided first line support
28 but also was the alarm monitoring center as well as call out center for Illinois
29 during off hours. SSOC personnel, of which I was one, were on call seven days
30 per week, twenty four hours per day. In 1987 I become an Instructor for GTE
31 North, located in Bloomington, Illinois. In that capacity, I instructed Management
32 and Craft personnel on various technical and operational characteristics of the
33 GTD5 electronic switch. In 1990 I returned to the Technical Support group.
34 Again, I was responsible for providing technical support not only to the Local
35 Technicians but also to the group's own Support Technicians. I also provided
36 technical support and undertook Test Engineering functions for the GTE's
37 Equipment Installation group. In addition, I was responsible for undertaking
38 office conversions on several 5ESS switches throughout Illinois. I helped
39 develop and train the Local Technicians on ADSL Testing in GTE North and
40 provided technical support for the ATM network. Further, I have worked on Local
41 Number Portability (LNP) and helped to develop the Fiber Restoration
42 Procedures for GTE North.

43
44 **Q. What is the purpose of your testimony in this proceeding?**

45 A. The purpose of my testimony is to address, in part, 1) the Jackson County
46 Narrative Plan, 2) Exhibit 10 the Network Diagrams, 3) Exhibits 10.1 and 10.2 -
47 Test Plans, and 3) the Pre-filed Direct Testimony of Michael J. Ramsey.

48

49 **Jackson County Narrative Plan**

50

51 Q. Have you read the Jackson County Narrative Modified Plan?

52 A. Yes.

53

54 Q. After reading the Narrative what is your understanding of how the
55 Modified Plan will work?

56 A. It is my understanding that the Frontier North, Inc. (Frontier) Carbondale
57 Access Tandem office will continue to receive 9-1-1 calls from the end offices
58 that it currently serves utilizing the existing network(s) as has been done prior to
59 this proposed modification. After this modified plan is implemented, Frontier will
60 aggregate and terminate the traffic to the two new NG-911, Inc. (NG-911) Data
61 Centers using a newly developed Frontier Aggregation Service (FAS). The FAS
62 consists of equipment in both Frontier's Carbondale, Illinois Central Office and Ft.
63 Wayne, Indiana Central Office. The FAS equipment will convert the 9-1-1 traffic
64 to Session Initiation Protocol (SIP) signaling using an Emergency Service
65 Routing Proxy (ESRP). Duplicate redundant ESRPs will be located in the
66 Carbondale, Illinois Central Office and the Ft. Wayne, Indiana Central Office.
67 SIP traffic will be transported to either the Harrisburg or Murphysboro central

68 offices and then transported to the NG-911 Data Centers located in the Jackson
69 County Sheriff's Office in Murphysboro or the Saline County Sheriff's Office in
70 Harrisburg. The data centers then selectively route the traffic to the appropriate
71 Jackson County PSAP using the Clearwave fiber ring.

72
73 Q. Is the Frontier Aggregation Service (FAS) a new service offering being provided
74 by Frontier?

75 A. Yes.

76
77 Q. Who is the customer subscribing to this service offering?

78 A. In response to a data request issued by Staff on February 10, 2014 to Mr.
79 Michael Ramsey, Mr. Ramsey indicated that the FAS service is being offered
80 under a commercial contract between Frontier and NG-911.

81
82 Q. Will all incoming 9-1-1 calls be routed through Frontier's existing selective router
83 located in the Carbondale central office?

84 A. It is my understanding that that is the case. Only incoming calls from a split
85 exchange that are to be directed to Jackson County or calls from an exchange
86 wholly located in Jackson County would then be routed on to the FAS and
87 ultimately on to the NG-911 data centers.

88
89 Q. What do you mean by the term "split exchange"?

90 A. A split exchange is a geographic area covered by a particular
91 telecommunications provider that is divided between two or more separate 9-1-1
92 entities. Calls to 9-1-1 from an end user located within one of these “split”
93 exchanges must be selectively routed to the appropriate PSAP.

94

95 Q. Are there split exchanges associated with the Jackson County 9-1-1 system?

96 A. Yes. There are 16 exchanges in Jackson County that would be considered split
97 exchanges.¹

98

99 Q. Under the modified plan, how will incoming 9-1-1 calls from split exchanges be
100 handled?

101 A. Frontier has accepted the responsibility of selectively routing calls from split
102 exchanges to the appropriate 9-1-1 system.

103

104 Q. Is there currently a provision for carriers to directly interconnect with the data
105 centers and bypass the Frontier Carbondale central office and the FAS?

106 A. In accordance with the information provided in the network diagrams as provided
107 in Exhibit 10 of the Plan, it appears that the only access carrier that is directly
108 connected to the data centers is Clearwave.

109

110 Q. Why is Clearwave directly connected to the data centers?

111 A. Clearwave is provisioning the network between the data centers and the PSAPs.

¹ Modified Plan page 16 of 24 “Split Exchanges – Jackson County”

112

113 Q. Is Clearwave directly connected to the data centers for the provision of 9-1-1
114 service for its end users?

115 A. In reviewing the response to AT&T's Data Request No. 4 as provided by NG-911,
116 Inc., it appears that Clearwave will gather its customers 9-1-1 calls and will route
117 them directly to the data centers.

118

119 Q. Does Staff have information regarding the number of customers receiving service
120 from Clearwave or whether the services being offered are facilities based or
121 VoIP?

122 A. No. Clearwave is not a party to this proceeding therefore Staff was unable to
123 ascertain the type of services offered, the number of potential customers
124 affected, or the location of the customers.

125

126 Q. Is it possible that Clearwave could be providing service to customers in split
127 exchanges?

128 A. Yes.

129

130 Q. Has NG-911 addressed the split exchange issue in its testimony?

131 A. Yes. Mr. Ramsey, at line 110, indicated that the FAS would be responsible for
132 handling calls from split exchanges. No reference to incoming calls directly from
133 Clearwave was made in Mr. Ramsey's testimony.

134

135 Q. Could this be a potential problem if split exchange calls are received at the NG-
136 911 selective routers?

137 A. Yes. Split exchange calls may potentially need to be routed to a separate 9-1-1
138 system other than Jackson County. If those calls are forwarded on to another
139 system, it is possible that the necessary ANI/ALI information will not be
140 forwarded.

141

142 Q. Could direct connection occur at some time in the future for other access
143 providers?

144 A. Yes, it is possible that other access providers could directly connect to the NG-
145 911 data centers.

146

147 Q. In the event that other access providers directly connect to the data centers,
148 would Frontier be responsible for handling split exchange calls from those
149 carriers.

150 A. No, not as I understand matters. It would be the responsibility of NG-911 to route
151 calls from split exchanges to the appropriate entities.

152

153 Q. Would a change in the network provisioning, such as direct connection, require
154 that Jackson County file a plan modification with the Commission?

155 A. In my opinion, this type of change in the network provisioning would require
156 Jackson County to file a plan modification. 83 Ill. Adm. Code 725.200(i) requires
157 modifications to a 9-1-1 authority's existing 9-1-1 plan to be formally submitted to

the Commission for approval. More specifically, 83 Ill. Adm. Code 725.200(i)(6) requires that changes in network configuration must be approved by the Commission. Submissions to the Commission under this section must include a modified plan, consisting of the revised application narrative and/or revised exhibits, as prescribed in Section 725.205.

Exhibit 10 the Network Diagram

Q. Have you reviewed the Network Diagrams provided in the Modified Narrative Plan?

A. Yes.

Q. What is your understanding of interconnection between CLECs and Wireless carriers and the FAS?

A. The Network Diagram on Page 3 of 5 of Exhibit 10 shows connection of the CLECs and Wireless carriers to the FAS and then on to the to the Selective Routers located in the Murphysboro and Harrisburg Data Centers.

Q. What is your understanding of interconnection between incumbent local exchange carriers and the FAS?

181 A. The Network Diagram on Page 4 of 5 of Exhibit 10 shows connection of the
182 Frontier exchanges and the Egyptian Telephone Company exchanges to the
183 FAS and then onto the Selective Routers located in the Murphysboro and
184 Harrisburg Data Centers.

185

186 Q. Please describe the Network Diagram on page 5 or 5, Exhibit 10.

187 A. The Network Diagram on Page 5 of 5 of Exhibit 10 is the combined layout of the
188 diagrams on pages 3 of 5 and 4 of 5.

189

190 Q. Is Staff satisfied with these network diagrams provided in the Modified Narrative
191 Plan?

192 A. Yes.

193

194 **Exhibits 10.1 and 10.2 the Test Plans**

195

196 Q. Have you reviewed the Test Plans in Exhibits 10.1 and 10.2?

197 A. Yes.

198

199 Q. What is contained in the Test Plan in Exhibit 10.1?

200 A. The Test Plan in Exhibit 10.1 consists of the functionality testing of the NG-911
201 network.

202

203 Q. Are you satisfied with the Test Plan in Exhibit 10.1?

204 A. Yes. The Test Plan in Exhibit 10.1 appears to test all aspects of NG-911s
205 network.

206

207 Q. What is contained in the Test Plan in Exhibit 10.2?

208 A. The Test Plan in Exhibit 10.2 tests the Frontier portion of the network.

209

210 Q. Are you satisfied with the Test Plan in Exhibit 10.2?

211 A. Yes. The Test Plan in Exhibit 10.2 appears to test all aspects of the Frontier
212 portion of the 9-1-1 network.

213

214 Q. Do you have recommendations regarding the filing as proposed by Jackson
215 County?

216 A. I recommend that the proposed plan modification as filed by Jackson County be
217 approved as filed.

218

219 **Pre-filed Direct Testimony of Michael J. Ramsey**

220

221 Q. Have you read the Pre-filed Direct Testimony of Michael J. Ramsey?

222 A. Yes, I have.

223

224 Q. In Mr. Ramsey's testimony, has he stated who will be responsible for provisioning
225 the network for the delivery of 9-1-1 calls in Jackson County?

226 A. Yes. In his testimony at line 123, Mr. Ramsey has stated that NG-911 will be
227 solely responsible for provisioning the network.

228

229 Q. Does this meet the requirements as set forth in 83 Ill. Adm. Code Part 725.405?

230 A. Yes.

231

232 Q. Do you have any objections to the proposed modifications to the Jackson County
233 9-1-1 system?

234 A. No, I do not.

235

236 Q. Does this conclude your testimony?

237 A. Yes.